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VOLUME 52

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THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES
CONTENTS OF VOLUME 52

1983 MAY, Number 1

		Page	Fiche
MASSIVE ECLIPSING BINARY CANDIDATES	*R. F. Garrison, R. E. Schild, and W. A. Hiltner*	1	9-A2
NEW *UBVRI* PHOTOMETRY FOR 900 SUPERGIANTS	*J. D. Fernie*	7	9-A8
A CATALOG OF HIERARCHICAL SUBCLUSTERING IN THE TURNER-GOTT GROUPS	*Suketu P. Bhavsar and Richard G. Piggott, Jr.*	23	9-C10
GENERAL PROPERTIES OF ALGOL BINARIES	*G. Giuricin, F. Mardirossian, and M. Mezzetti*	35	9-E1

JUNE, Number 2

GROUPS OF GALAXIES. III. THE CfA SURVEY	*M. J. Geller and J. P. Huchra*	61	10-A2
A SURVEY OF GALAXY REDSHIFTS. IV. THE DATA	*John Huchra, Marc Davis, David Latham, and John Tonry*	89	10-D11
STELLAR SPECTROPHOTOMETRIC ATLAS, $3130 < \lambda < 10800$ Å	*James E. Gunn and L. L. Stryker*	121	11-A11
LINE RADIATION FROM A HOT, OPTICALLY THIN PLASMA: COLLISION STRENGTHS AND EMISSIVITIES	*T. J. Gaetz and E. E. Salpeter*	155	10-D9
A CATALOG OF SPECTRAL CLASSIFICATION AND PHOTOMETRY OF BARIUM STARS	*P. K. Lü, D.W. Dawson, A. R. Upgren, and E. W. Weis*	169	11-E11
ERRATUM			
5 GHz Observations of Sources in the Arecibo 611 MHz Survey	*C. R. Lawrence, C. L. Bennett, J. A. Garcia-Barreto, P. E. Greenfield, and B. F. Burke*	182	11-G4

JULY, Number 3

THE EVOLUTION OF GALAXIES IN CLUSTERS. III. PHOTOMETRY OF 17 INTERMEDIATE REDSHIFT CLUSTERS	*Harvey Butcher, August Oemler, Jr., and Donald C. Wells*	183	12-A2
AN Hα-[N II] SURVEY OF THE NUCLEI OF A COMPLETE SAMPLE OF SPIRAL GALAXIES	*William C. Keel*	229	12-F8
THE CHEMICAL COMPOSITION OF STARS IN GLOBULAR CLUSTERS	*Catherine A. Pilachowski, Christopher Sneden, and George Wallerstein*	241	12-G9
REGIONS OF LOW MOLECULAR COLUMN DENSITY NEAR THE GALACTIC PLANE	*F. Verter, G. R. Knapp, A. A. Stark, and R. W. Wilson*	289	13-D8
A CATALOG OF HIGH ACCURACY CIRCULAR POLARIZATION MEASUREMENTS	*Kurt W. Weiler and Imke de Pater*	293	13-D12
FOURIER SPECTROSCOPY OF THE $^{12}C_2$, $^{13}C_2$, and $^{12}C^{13}C$(0–0) SWAN BANDS	*C. Amiot*	329	14-A2

AUGUST, Number 4

A NEAR-INFRARED AND OPTICAL STUDY OF X-RAY SELECTED SEYFERT GALAXIES. I. OBSERVATIONS	*Christopher W. McAlary, R. A. McLaren, R. J. McGonegal, and J. Maza*	341	15-A8
DYNAMO GENERATION OF MAGNETIC FIELDS IN THREE-DIMENSIONAL SPACE: SOLAR CYCLE MAIN FLUX TUBE FORMATION AND REVERSALS	*Hirokazu Yoshimura*	363	15-C13
ELECTRON EXCITATION RATES AMONG FINE STRUCTURE LEVELS IN O III	*K. M. Aggarwal*	387	15-F1
RADIAL VELOCITIES OF PLANETARY NEBULAE	*Stephen E. Schneider, Yervant Terzian, A. Purgathofer, and M. Perinotto*	399	15-G5
NEW CENTRAL VELOCITY DISPERSIONS FOR THE BULGES OF 53 SPIRAL AND S0 GALAXIES	*Paul L. Schechter*	425	16-B4
A *uvby*, β PHOTOMETRIC SURVEY OF SOUTHERN HEMISPHERE ECLIPSING BINARY STARS	*George W. Wolf and Janet T. Kern*	429	16-B7
THE EMISSION SPECTRUM OF YTTRIUM MONOXIDE: NEW ROTATIONAL AND VIBRATIONAL RESULTS ON THE $A^2\Pi$–$X^2\Sigma^+$ SYSTEM	*A. Bernard and R. Gravina*	443	16-D1
PULSATIONS AND VISCOSITY	*J. P. Cox and B. L. Everson*	451	16-D11
LUMINOSITY DISTRIBUTION IN GALAXIES. II. A STUDY OF ACCIDENTAL AND SYSTEMATIC ERRORS WITH APPLICATION TO NGC 3379	*M. Capaccioli and G. de Vaucouleurs*	465	16-E10

(*Continued from Cover 4*)

"The Solar O III Spectrum. II. Longer Wavelengths, Line Widths, and the He II Lyman α Radiation Field." S. O. KASTNER, W. E. BEHRING, AND A. K. BHATIA.

Previously we found that the Bowen mechanism could explain the relative intensities of certain solar O III lines. Here we show that the required He II Lyα intensity is 150 times greater than we calculate from the solar He II radiation model of Avrett, Vernazza, and Linsky. Atomic transition rates and, for most cases, collision and oscillator strengths are calculated and discussed for 1100 O III lines, which are important also in nebular studies. We discuss at length the spectrum above 90 Å including solar line widths and intensities.

"A Study of Low Surface Brightness Spiral Galaxies. II. Optical Surface Photometry, Infrared Photometry, and H II Region Spectrophotometry." W. ROMANISHIN, K. M. STROM, AND S. E. STROM.

Optical surface photometry, optical and infrared aperture photometry, and spectrometry of individual H II regions is presented for a sample of low surface brightness ($22.1 < B(0) < 23.7$ mag arcsec^{-2}) spiral galaxies. As a group, these galaxies have unusually blue disks as judged from their IR colors. Moreover, the H II regions have anomalously low Hβ equivalent widths and an apparently lower than normal degree of ionization.

"Linear Polarization Observations in Selected Celestial Zones: The Gum Nebula Area." R. C. BIGNELL AND J. P. VALLÉE.

The linear polarizations of several extragalactic radio sources in a restricted celestial angular zone encompassing the Gum nebula area have been measured at a wavelength of 2.8 cm using the Algonquin Radio Observatory, and at wavelengths of 2.0, 6.1, and 20.5 cm using the Very Large Array. These polarization measurements complement and extend a continuing program to study localized effects from specific zones of our Galaxy.

"The Magnetic Fields of the Helium-weak B Stars." ERMANNO F. BORRA, J. D. LANDSTREET, AND IAN THOMPSON.

We have carried out a survey of magnetic fields in 30 helium-weak main-sequence B stars, one horizontal-branch B star, and one sdOB star, with typical measurement errors of 100–400 gauss. Fields are detected or confirmed in 12 stars, nine of which are known to belong to the Si and Sr–Ti He-weak spectroscopic subclasses. No fields are found in P–Ga stars. It appears that Si and Sr–Ti He-weak stars form a hotter continuation of the magnetic Ap stars.

"JPL Pulsar Timing Observations. II. Geocentric Arrival Times." G. S. DOWNS AND P. E. REICHLEY.

Geocentric arrival times obtained at 2388 MHz for 24 pulsars are tabulated as epochs in ephemeris time. Annual effects due to clock motion and Doppler-dispersion interaction have been removed. Positions and proper motions have been determined or assumed in order to derive barycentric arrival times based on JPL ephemeris DE 96.

THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES

INDEX TO VOLUME 52

1983 MAY, JUNE, JULY, AND AUGUST

AGGARWAL, K. M. Electron Excitation Rates among Fine Structure Levels in O III. *K. M. Aggarwal.* **52,** 387, 15-F1

AMIOT, C. Fourier Spectroscopy of the $^{12}C_2$, $^{13}C_2$, and $^{12}C^{13}C$(0–0) Swan Bands. *C. Amiot.* **52,** 329, 14-A2

BENNETT, C. L. 5 GHz Observations of Sources in the Arecibo 611 MHz Survey: Erratum. *C. R. Lawrence, C. L. Bennett, J. A. Garcia-Barreto, P. E. Greenfield, and B. F. Burke.* **52:**182, 11-G4

BERNARD, A. The Emission Spectrum of Yttrium Monoxide: New Rotational and Vibrational Results on the $A^2\Pi$–$X^2\Sigma^+$ System. *A. Bernard and R. Gravina.* **52,** 443, 16-D1

BHAVSAR, SUKETU P. A Catalog of Hierarchical Subclustering in the Turner-Gott Groups. *Suketu P. Bhavsar and Richard G. Piggott, Jr.* **52,** 23, 9-C10

BURKE, B. F. 5 GHz Observations of Sources in the Arecibo 611 MHz Survey: Erratum. *C. R. Lawrence, C. L. Bennett, J. A. Garcia-Barreto, P. E. Greenfield, and B. F. Burke.* **52,** 182, 11-G4

BUTCHER, HARVEY. The Evolution of Galaxies in Clusters. III. Photometry of 17 Intermediate Redshift Clusters. *Harvey Butcher, Augustus Oemler, Jr., and Donald C. Wells.* **52,** 183, 12-A2

CAPACCIOLI, M. Luminosity Distribution in Galaxies. II. A Study of Accidental and Systematic Errors with Application to NGC 3379. *M. Capaccioli and G. de Vaucouleurs.* **52,** 465, 16-E10

COX, J. P. Pulsations and Viscosity. *J. P. Cox and B. L. Everson.* **52,** 451, 16-D11

DAVIS, MARC. A Survey of Galaxy Redshifts. IV. The Data. *John Huchra, Marc Davis, David Latham, and John Tonry.* **52,** 89, 10-D11

DAWSON, D. W. A Catalog of Spectral Classification and Photometry of Barium Stars. *P. K. Lü, D. W. Dawson, A. R. Upgren, and E. W. Weis.* **52,** 169, 11-E11

DE PATER, IMKE. A Catalog of High Accuracy Circular Polarization Measurements. *Kurt W. Weiler and Imke de Pater.* **52,** 293, 13-D12

DE VAUCOULEURS, G. Luminosity Distribution in Galaxies. II. A Study of Accidental and Systematic Errors with Application to NGC 3379. *M. Capaccioli and G. de Vaucouleurs.* **52,** 465, 16-E10

EVERSON, B. L. Pulsations and Viscosity. *J. P. Cox and B. L. Everson.* **52,** 451, 16-D11

FERNIE, J. D. New *UBVRI* Photometry for 900 Supergiants. *J. D. Fernie.* **52,** 7, 9-A8

GAETZ, T. J. Line Radiation from a Hot, Optically Thin Plasma: Collision Strengths and Emissivities. *T. J. Gaetz and E. E. Salpeter.* **52,** 155, 11-D9

GARCIA-BARRETO, J. A. 5 GHz Observations of Sources in the Arecibo 611 MHz Survey: Erratum. *C. R. Lawrence, C. L. Bennett, J. A. Garcia-Barreto, P. E. Greenfield, and B. F. Burke.* **52,** 182, 11-G4

GARRISON, R. F. Massive Eclipsing Binary Candidates. *R. F. Garrison, R. E. Schild, and W. A. Hiltner.* **52,** 1, 9-A2

GELLER, M. J. Groups of Galaxies. III. The CfA Survey. *M. J. Geller and J. P. Huchra.* **52,** 61, 10-A2

GIURICIN, G. General Properties of Algol Binaries. *G. Giuricin, F. Mardirossian, and M. Mezzetti.* **52,** 35, 9-E1

GRAVINA, R. The Emission Spectrum of Yttrium Monoxide: New Rotational and Vibrational Results on the $A^2\Pi$–$X^2\Sigma^+$ system. *A. Bernard and R. Gravina.* **52,** 443, 16-D1

GREENFIELD, P. E. 5 GHz Observations of Sources in the Arecibo 611 MHz Survey: Erratum. *C. R. Lawrence, C. L. Bennett, J. A. Garcia-Barreto, P. E. Greenfield, and B. F. Burke.* **52,** 182, 11-G4

GUNN, JAMES E. Stellar Spectrophotometric Atlas, $3130 < \lambda < 10800$ Å. *James E. Gunn and L. L. Stryker.* **52,** 121, 11-A11

HILTNER, W. A. Massive Eclipsing Binary Candidates. *R. F. Garrison, R. E. Schild, and W. A. Hiltner.* **52,** 1, 9-A2

HUCHRA, JOHN. A Survey of Galaxy Redshifts. IV. The Data. *John Huchra, Marc Davis, David Latham, and John Tonry.* **52,** 89, 10-D11

HUCHRA, J. P. Groups of Galaxies. III. The CfA Survey. *M. J. Geller and J. P. Huchra.* **52,** 61, 10-A2

KEEL, WILLIAM C. An Hα [N II] Survey of the Nuclei of a Complete Sample of Spiral Galaxies. *William C. Keel.* **52,** 229, 12-F8

KERN, JANET T. A *uvby*, β Photometric Survey of Southern Hemisphere Eclipsing Binary Stars. *George W. Wolf and Janet T. Kern.* **52,** 429, 16-B7

KNAPP, G. R. Regions of Low Molecular Column Density near the Galactic Plane. *F. Verter, G. R. Knapp, A. A. Stark, and R. W. Wilson.* **52,** 289, 13-D8

LATHAM, DAVID. A Survey of Galaxy Redshifts. IV. The Data. *John Huchra, Marc Davis, David Latham, and John Tonry.* **52,** 89, 10-D11

LAWRENCE, C. R. 5 GHz Observations of Sources in the Arecibo 611 MHz Survey: Erratum. *C. R. Lawrence, C. L. Bennett, J. A. Garcia-Barreto, P. E. Greenfield, and B. F. Burke.* **52,** 182, 11-G4

LÜ, P. K. A Catalog of Spectral Classification and Photometry of Barium Stars. *P. K. Lü, D. W. Dawson, A. R. Upgren, and E. W. Weis.* **52,** 169, 11-E11

MARDIROSSIAN, F. General Properties of Algol Binaries. *G. Giuricin, F. Mardirossian, and M. Mezzetti.* **52,** 35, 9-E1

MAZA, J. A Near-Infrared and Optical Study of X-Ray Selected Seyfert Galaxies. I. Observations. *Christopher W. McAlary, R. A. McLaren, R. J. McGonegal, and J. Maza.* **52,** 341, 15-A8

MEZZETTI, M. General Properties of Algol Binaries. *G. Giuricin,*

F. Mardirossian, and M. Mezzetti. **52,** 35, 9-E1

McALARY, CHRISTOPHER W. A Near-Infrared and Optical Study of X-Ray Selected Seyfert Galaxies. I. Observations. *Christopher W. McAlary, R. A. McLaren, R. J. McGonegal, and J. Maza.* **52,** 341, 15-A8

McGONEGAL, R. J. A Near-Infrared and Optical Study of X-Ray Selected Seyfert Galaxies. I. Observations. *Christopher W. McAlary, R. A. McLaren, R. J. McGonegal, and J. Maza.* **52,** 341, 15-A8

McLAREN, R. A. A Near-Infrared and Optical Study of X-Ray Selected Seyfert Galaxies. I. Observations. *Christopher W. McAlary, R. A. McLaren, R. J. McGonegal, and J. Maza.* **52,** 341, 15-A8

OEMLER, AUGUSTUS, JR. The Evolution of Galaxies in Clusters. III. Photometry of 17 Intermediate Redshift Clusters. *Harvey Butcher, Augustus Oemler, Jr., and Donald C. Wells.* **52,** 183, 12-A2

PERINOTTO, M. Radial Velocities of Planetary Nebulae, *Stephen E. Schneider, Yervant Terzian, A. Purgathofer, and M. Perinotto.* **52,** 399, 15-G5

PIGGOTT, RICHARD G., JR. A Catalog of Hierarchical Subclustering in the Turner-Gott Groups. *Suketu P. Bhavsar and Richard G. Piggott, Jr.* **52,** 23, 9-C10

PILACHOWSKI, CATHERINE A. The Chemical Composition of Stars in Globular Clusters. *Catherine A. Pilachowski, Christopher Sneden, and George Wallerstein.* **52,** 241, 12-G9

PURGATHOFER, A. Radial Velocities of Planetary Nebulae. *Stephen E. Schneider, Yervant Terzian, A. Purgathofer, and M. Perinotto.* **52,** 399, 15-G5

SALPETER, E. E. Line Radiation from a Hot, Optically Thin Plasma: Collision Strengths and Emissivities. *T. J. Gaetz and E. E. Salpeter.* **52,** 155, 11-D9

SCHECHTER, PAUL L. New Central Velocity Dispersions for the Bulges of 53 Spiral and S0 Galaxies. *Paul L. Schechter.* **52,** 425, 16-B4

SCHILD, R. E. Massive Eclipsing Binary Candidates. *R. F. Garrison, R. E. Schild, and W. A. Hiltner.* **52,** 1, 9-A2

SCHNEIDER, STEPHEN E. Radial Velocities of Planetary Nebulae. *Stephen E. Schneider, Yervant Terzian, A. Purgathofer, and M. Perinotto.* **52,** 399, 15-G5

SNEDEN, CHRISTOPHER. The Chemical Composition of Stars in Globular Clusters. *Catherine A. Pilachowski, Christopher Sneden, and George Wallerstein.* **52,** 241, 12-G9

STARK, A. A. Regions of Low Molecular Column Density near the Galactic Plane. *F. Verter, G. R. Knapp, A. A. Stark, and R. W. Wilson.* **52,** 289, 13-D8

STRYKER, L. L. Stellar Spectrophotometric Atlas, $3130 < \lambda < 10800$ Å. *James E. Gunn and L. L. Stryker.* **52,** 121, 11-A11

TERZIAN, YERVANT. Radial Velocities of Planetary Nebulae. *Stephen E. Schneider, Yervant Terzian, A. Purgathofer, and M. Perinotto.* **52,** 399, 15-G5

TONRY, JOHN. A Survey of Galaxy Redshifts. IV. The Data. *John Huchra, Marc Davis, David Latham, and John Tonry.* **52,** 89, 10-D11

UPGREN, A. R. A Catalog of Spectral Classification and Photometry of Barium Stars. *P. K. Lü, D. W. Dawson, A. R. Upgren, and E. W. Weis.* **52,** 169, 11-E11

VERTER, F. Regions of Low Molecular Column Density near the Galactic Plane. *F. Verter, G. R. Knapp, A. A. Stark, and R. W. Wilson.* **52,** 289, 13-D8

WALLERSTEIN, GEORGE. The Chemical Composition of Stars in Globular Clusters. *Catherine A. Pilachowski, Christopher Sneden, and George Wallerstein.* **52,** 241, 12-G9

WEILER, KURT. W. A Catalog of High Accuracy Circular Polarization Measurements. *Kurt W. Weiler and Imke de Pater.* **52,** 293, 13-D12

WEIS, E. W. A Catalog of Spectral Classification and Photometry of Barium Stars. *P. K. Lü, D. W. Dawson, A. R. Upgren, and E. W. Weis.* **52,** 169, 11-E11

WELLS, DONALD C. The Evolution of Galaxies in Clusters. III. Photometry of 17 Intermediate Redshift Clusters. *Harvey Butcher, Augustus Oemler, Jr., and Donald C. Wells.* **52,** 183, 12-A2

WILSON, R. W. Regions of Low Molecular Column Density near the Galactic Plane. *F. Verter, G. R. Knapp, A. A. Stark, and R. W. Wilson.* **52,** 289, 13-D8

WOLF, GEORGE W. A *uvby,* β Photometric Survey of Southern Hemisphere Eclipsing Binary Stars. *George W. Wolf and Janet T. Kern.* **52,** 429, 16-B7

YOSHIMURA, HIROKAZU. Dynamo Generation of Magnetic Fields in Three-Dimensional Space: Solar Cycle Main Flux Tube Formation and Reversals. *Hirokazu Yoshimura.* **52,** 363, 15-C13